

## SCIENTIFIC AND OPERATIONAL NOTES

### *Hypothenemus obscurus* (Fabricius) (Coleoptera: Scolytidae), a New Pest of Macadamia Nuts in Hawaii<sup>1</sup>

JOHN W. BEARDSLEY<sup>2</sup>

#### ABSTRACT

A tropical American scolytid beetle, *Hypothenemus obscurus* (Fabricius), was found for the first time in the Hawaiian islands during July 1988 when beetles were reared from macadamia nuts from the Kona region of Hawaii Island. Macadamia is a previously unreported host for *H. obscurus* which is a potentially serious new pest of this crop.

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A tropical American scolytid beetle, *Hypothenemus obscurus* (Fabricius), was found to be established in Hawaii in June 1988 when it was reared from damaged macadamia nuts from the Kona District of Hawaii Island. The nuts were submitted by Mr. Alan Tokunaka, then General Manager of Pacific Coffee Cooperative, a macadamia nut processor.

Recognized as being something new to Hawaii, specimens were sent to the USDA Systematic Entomology Laboratory in Beltsville, Maryland, and later to Dr. Stephen Wood, Brigham Young University, Provo, Utah, a specialist in scolytid taxonomy, who identified the species.

**DISTRIBUTION:** Wood (1982) gave the distribution of *H. obscurus* as "Florida and Costa Rica and Puerto Rico to Brazil," and, in addition, listed records from Panama, Dominican Republic, Jamaica, Colombia, and Venezuela. Presumably, it is widely distributed in tropical America.

There are literature records of *H. obscurus*, or its synonyms, from widely scattered localities outside tropical America. In part, these may represent misidentifications, which have been common in this taxonomically difficult group. Other records may have been based on rearings from imported Brazil nuts or other seeds. At present it is unclear whether this species is established outside of tropical America and Hawaii.

**HOSTS:** Wood (1982) stated that "This economically important species breeds in the fruiting pods and seeds of a wide variety of hosts. Apparently, it is also capable of breeding in the twigs of certain hosts, although such records have not been adequately confirmed. It is best known from inter-

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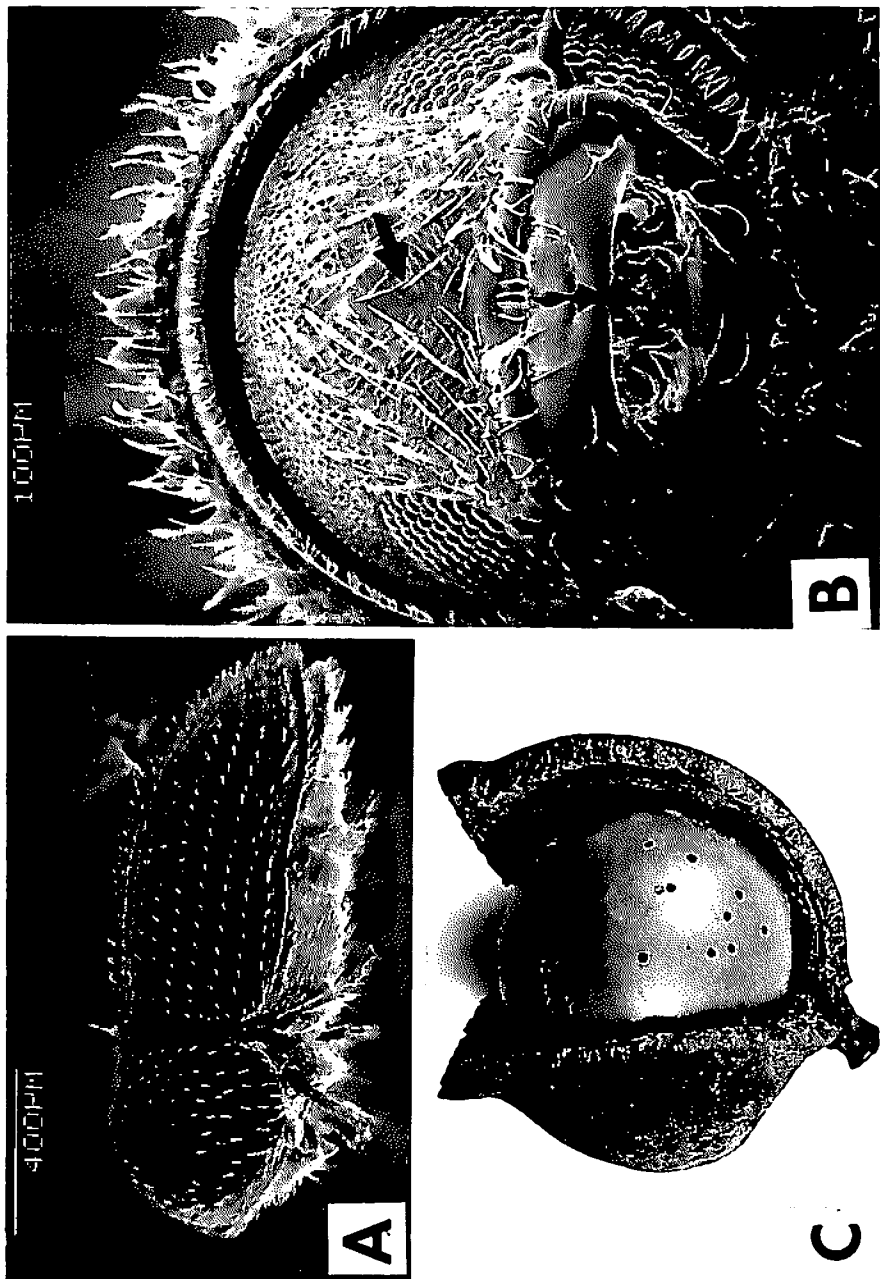
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<sup>2</sup>Department of Entomology, University of Hawaii, 3050 Maile Way, Honolulu, Hawaii 96822.

ceptions in Brazil nuts." He listed as confirmed host *Bertholletia excelsa* (Brazil nut), *Hymenea courbaril*, *Myristica fragrans* (nutmeg), *Tamarandus indica* (tamarind), and *Theobroma cacao* (cacao). Other authors have listed *H. obscurus* as having been reared from coffee berries (e.g.: da Costa Lima 1956, Le Pelley 1968), indicating that occasionally it may be a pest of that crop, although of much less importance than *Hypothenemus hampei* (Ferrari), the coffee berry borer.

**BIOLOGY:** No detailed information on the biology of *H. obscurus* was found. Wood (1982) provided some general information on biology of species of the genus *Hypothenemus*. He stated that many of the species are parthenogenetic, or partly so, and males, if they occur, are dwarfed and flightless. Two males of *H. obscurus* obtained from infested macadamia nuts were about one-half the size of the females. Wood stated that females deposit eggs in galleries in newly invaded host tissue, and egg and larval development is often rapid; "perhaps as little as two weeks for the combined total in some tropical species." In macadamia, I have seen single entrance holes on nuts still in green husks on the trees. Multiple holes (Figure 1C) are commonly seen in mature nuts on the ground and on the trees, particularly in the so-called "stick-tights" (nuts which do not dehisce and fall in the normal manner). When opened, the kernel of such nuts exhibit extensive tunneling, presumably from the feeding and emergence of a brood of beetles. Wood pointed out that when circumstances are favorable more than one generation can develop in the same piece of host material. This may occur in infested macadamia nuts, although invasion by saprophytic fungi often was seen in damaged nuts that I opened, and this probably renders many nuts unsuitable for further *Hypothenemus* development.

The adult female of *H. obscurus* (Figure 1A) is similar in size and general appearance to *H. seriatus* (Eichhoff), a species which has been present in Hawaii for many years. *H. seriatus* has a wide host range, but most commonly infests twigs and branches, although it may occasionally occur in seeds. A key character used by Wood (1982) to separate *obscurus* from *seriatus* and some other *Hypothenemus* species is the presence in the former of a narrow median groove extending above the epistoma (Figure 1B). This groove is obsolete or absent in *H. seriatus*. However, it may not be readily observable in all specimens of *obscurus*. Some additional differences observed in Hawaiian specimens of these two species involve the development of the pronotal teeth and the form of the elytral scales. The pronotal teeth are somewhat larger and more obvious in *seriatus* females, which generally have six teeth of nearly equal size on the mesal part of the anterior margin. In *obscurus* the pronotal teeth are less strongly developed and on the anterior margin the lateral teeth usually are distinctly smaller than the mesal pair. The elytra scales generally appear to be broader and shorter in *seriatus* specimens than in *obscurus*. In the former the scales have an apical width equal to about one-half their length or slightly less, while in *obscurus* the apical width of the scales is around one-third their length or less.



**FIGURE 1.** *Hypothenemus obscurus*; A, Adult female; B, Frontal view of head and pronotum of female; C, Mature macadamia nut in dehiscent husk, showing exit holes.

## REFERENCES CITED

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